Draft Environmental Assessment
Village of Bartlett Flood Mitigation Project

Village of Bartlett, Illinois
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Contents

List of Appendices

List of Acronyms

APE	Area of Potential Effect
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CO	Carbon monoxide
CWA	Clean Water Act
dB	Decibels
DO	Dissolved Oxygen
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
H&H	Hydrology & Hydraulics
HMGP	Hazard Mitigation Grant Program
LUST	Leaking underground storage tank
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO2	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
OAQPS	Office of Air Quality Planning and Standards
OSHA	Occupational Safety and Health Administration
Pb	Lead
PL	Public Law
PM10	Particulate matter
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
ROW	Right-of-way
SHPO	State Historical Preservation Office
SHWS	State Hazardous Waste Site
SO2	Sulfur Dioxide
SWA	Solid Waste Act
THPO	Tribal Historic Preservation Office

1.0 Introduction

1.1 Project Authority

The Village of Bartlett, through the Illinois Emergency Management Agency (IEMA), applied to the Federal Emergency Management Agency (FEMA) for assistance with the following Hazard Mitigation Grant Program (HMGP) proposed project. The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

The HMGP application number for this proposed project is 1935.16R.

In accordance with 44 Code of Federal Regulations (CFR) for FEMA, Subpart B, Agency Implementing Procedures, Part 10.9, the following Environmental Assessment (EA) is being prepared pursuant to Section 102 of the National Environmental Policy Act (NEPA) of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (CEQ; 40 CFR Parts 1500-1508). The purpose of the EA is to analyze the potential environmental impacts of the proposed project, and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.2 Project Location

The Village of Bartlett Flood Mitigation Project (BFMP) is within and near the Village of Bartlett, Cook County, Illinois. The Village of Bartlett is a developed suburban municipality located in the northwest suburbs of the Chicago Metropolitan area covering an area of 15.95 square miles. Neighboring communities include Elgin, Schaumburg, Streamwood, and Hanover Park. Bartlett is within minutes of arterial roadways such as the Elgin-O'Hare expressway and IL Route 59. This community is expanding and growing rapidly; the 2010 population estimate for the Village is 41,208, an increase of 12.2% from the 2000 census. Bartlett is primarily a residential and commercial community with some light industrial operations.

In general, the proposed project is located to the east of Oak Avenue, between Route 20 and Devon Avenue. The five project locations include the Streamwood Flood Storage parcel at the southeast corner of North Avenue and Prospect Avenue, the Hearthwood Farms Flood Storage parcel at the northeast corner of Wilmington Drive and Prospect Avenue, the Crest Avenue and Taylor Avenue Flood Control parcel on the north side of Taylor Avenue, between Marion Avenue and Berteau Avenue and two stormsewer improvement areas at Morse Avenue and Newport Lane. Geographically, the project site is located in Section 35, Township 41 North, Range 9, East of the Third Principal Meridian. A location map is included in Appendix A.

1.3 Purpose and Need

This proposed project is located on the north side of the Village of Bartlett where development occurred prior to modern stormwater management practices. Since 2007, Bartlett has been included in three Federal Major Disaster Declarations due to strong storms and flooding. The August 2007, September 2008, and July 2010 disasters caused severe flooding in several residential communities, resulting in sanitary sewer backups, flooded homes, impassable roadways, and extensive property damage. During these recent flood events the project area experienced significant flooding due to the large upstream drainage area, insufficient flood storage, limited storm sewer capacity and no safe overland flow route. Two residential subdivisions including the west side of Prospect Avenue in north Bartlett and in the nearby Hearthwood Farms Subdivision were especially hard hit in September 2008 and July 2010. Flood waters reached 18 inches deep in the first floor and all access roadways into and out of the areas were inaccessible. These areas are the lower income areas of the Village, with approximately 40% of residents qualifying as Low to Moderate Income (LMI). The recurrent flooding has contributed to the deterioration of these neighborhoods. The purpose of the project is to reduce the likelihood of flooding in the previously mentioned residential developments.

Land area within the Village of Bartlett lies in both Cook and DuPage County and therefore is covered under DuPage County's Natural Hazards Mitigation Plan. The proposed projects described in the alternative analysis are consistent with DuPage County's Natural Hazards Mitigation Plan by supporting the following goals including:

1. Protect the lives, health, and safety of the citizens of DuPage County from the impact and effects of natural hazards;
2. Protect utilities and streets from the impact of natural hazards;
3. Mitigate potential damage to buildings and structures;
4. Protect historic, cultural, and natural resources from the effects of natural hazards.

The County's Mitigation Plan identifies structural projects such as reservoirs and storm sewer improvements, when combined with detention projects, such as those proposed as part of this project, as effective measures for flood control and mitigation.

2.0 Alternatives Analysis

2.1 Alternative 1 – No Action Alternative

No action would be taken to reduce the damages caused by flooding within this portion of the Village of Bartlett in the Tributary #2 West Branch of the DuPage River watershed. Flooding would continue to impact private homes and property, and roads. Flooding would also continue to present risks to human health and safety.

2.2 Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)

The project consists of the construction of two stormwater storage basins and storm sewer improvements. The Hearthwood Farms Flood Storage Basin consists of creating approximately 15 acre-feet of additional stormwater storage volume within a 3.5 acre parcel immediately adjacent to the Subdivision. The proposed Streamwood Flood Storage Basin consists of creating approximately 100 acre-feet of additional stormwater storage volume. The storage basins would temporarily store stormwater runoff and lower flood elevations in the surrounding area. There are also three other minor flood control and storm sewer improvements within the subwatershed proposed including the Taylor Avenue parcel, Morse Avenue and Newport Lane.

The five subcomponents of this project are designed to provide the maximum feasible level of flood protection for the adjacent residential and commercial structures. There are approximately 23 single and multi-family structures that are impacted by flooding. For 13 structures, the project would lower the peak 1% annual flood elevation below the low entry elevation of the adjacent residential and commercial structures. For the 10 remaining structures, the goal of the project was to reduce the frequency and depth of structure flooding to the maximum extent practicable and the Village would work with the property owner to develop flood proofing plans to reduce the residual risk to the extent possible.

The combination of the project subcomponents presents a watershed-based approach to flooding on the north side of the Village of Bartlett. The following describes the design and construction details pertaining to the five project subcomponents:

<u>Streamwood Parcel Flood Storage</u>

The Streamwood Parcel is a vacant parcel comprised of emergent wetland, scrub-shrub woody vegetation and a drainageway. The site is bordered by North Avenue to the north, Prospect Avenue to the west and a railroad spur line to the south and east. Geographically, the site is located at Latitude 41.993655 and Longitude -88.172919. This property was previously within the Village of Streamwood, but was recently annexed to the Village of Bartlett for the purposes of this grant. The Village of Streamwood owns the parcel, and the Village of Bartlett and the Village of Streamwood have an Inter-Governmental Agreement (IGA) that allows this area to remain as open space upon completion of the excavation.

The residential structures in the vicinity of North Avenue and Prospect Avenue experience significant flooding in flood events greater than the 10-year return interval design storm as confirmed by the XP-SWMM hydrologic modeling and Benefit Cost Analysis (BCA). In the 100-year design storm event, approximately 11 single and multi-family residential structures

experience first floor flooding, which occurred in the September 2008 storm event. The flooding is due primarily to the large tributary area upstream of the project site (approximately 2 square miles) and the limited stormwater existing storage and conveyance capacity provided by storm sewers and overland flow paths within the watershed. This is an older section of town that was built prior to modern stormwater ordinances and practices that would have required storm sewers and detention basins to be sized to store and convey this water.

The proposed improvements at the Streamwood Parcel include excavating approximately 75-100 acre-ft of additional stormwater storage volume. The Streamwood Parcel is an existing low lying area that fills with stormwater via existing pipes and overland flow when the surrounding storm sewer system reaches capacity. The proposed flood storage would be accessed by floodwaters when the existing storm sewer system becomes surcharged, which is similar to how the area functions currently. The water would be safely detained in the basin rather than flooding adjacent residential structures. The new storage basin would outlet to the existing 54" diameter storm sewer line running south down Prospect Avenue. The average excavation depth is approximately 6-7 feet, and the area would be restored to open space with native vegetation upon completion of the project. There are currently 9.4 acres of wetlands on the Streamwood Parcel.

Hearthwood Farms Flood Storage - Prospect Commercial Parcel

The Prospect Commercial Parcel is comprised of mowed turf grasses and a constructed stormwater detention basin with a partial wetland bottom. The site is bordered by Wilmington Drive to the south, Prospect Avenue to the west, railroad tracks to the north and a residential subdivision to the east. Geographically, the site is located at Latitude 41.990228 and Longitude -88.173365.

The residential structures in the Hearthwood Farms Subdivision also experience significant flooding during storm events greater than the 10-year return interval design storm event. In the 100-year design storm event, approximately 13 multi-family residential structures experience first floor flooding. This was confirmed in the September 2008 storm event and the July 2010 storm event.

The proposed improvements include creating approximately 16 acre-ft of additional stormwater storage volume on a 3.5 acre open parcel (Prospect Commercial Parcel) located immediately adjacent to the Hearthwood Farms Subdivision. The property is currently commercial zoned and privately owned, and the Village and the property owner have agreed to the sale of the property for the flood control project.

The average excavation depth is approximately 5-10 feet, and the area would be restored with native vegetation upon completion of the project. The basin would act as a flood storage basin that would accept stormwater overflow from the existing Hearthwood Farms stormwater detention basin. The water would be safely stored at a lower elevation in the basin rather than flooding the adjacent residential structures. The proposed basin would discharge to a new 36" diameter storm sewer line on Wilmington Drive that connects to the 54" diameter storm sewer line running south down Prospect Avenue. In addition to the new storage basin, backflow prevention devices are proposed to be installed on storm sewer lines that discharge to the 54" diameter storm sewer to prevent surcharged stormwater

runoff from backing into the Hearthwood Farms Subdivision. Minor storm sewer improvements within Hearthwood Farms are also proposed as part of this project.

Crest Avenue and Taylor Avenue - Minor Flood Control

The Crest Avenue and Taylor Avenue project area (41.998750N, -88.179034E) is comprised primarily of mowed turf. The site is bordered by Taylor Avenue to the south, residential homes to the east, a community park with mowed turf and open scrub-shrub woodland to the north and a public elementary school to the west.

The residential structures at Crest Avenue and Taylor Avenue also experience significant flooding during storm events greater than the 10-year return interval design storm event. In the 100-year design storm event, approximately 5 single family residential structures experience first floor flooding. The modeling was confirmed by the September 2008 storm event. The primary cause for this is the large tributary area upstream of the project site (approximately 1 square mile) and the limited stormwater storage and conveyance capacity.

Drainage improvements are proposed at the intersection of Crest Avenue and Taylor Avenue. A small 1-2 ft high berm is proposed within the Right of Way (ROW) of Taylor Avenue to prevent overland flow from the wetland area to the north from inundating the low point on Crest Avenue. Installation of a larger diameter storm sewer system on Crest Avenue along with high-capacity inlets at the curb line would improve drainage at the low point. Additionally, backflow prevention devices are proposed to be installed on the 24" diameter outlet storm sewer line heading east on Taylor Avenue and on the 18" diameter storm sewer line heading east on Morse Avenue to prevent stormwater runoff from backing into the low points of the roadways. All work for this project is contained within the Village of Bartlett roadway ROW.

Morse Avenue and Newport Lane – Storm Sewer Improvements

The Morse Avenue project area (41.996874N, -88.175882E) is an existing residential street (Morse Avenue) between Chase Avenue on the west and Hale Avenue on the east. The project area is bordered by residential homes to the north and south.

Improvements at Morse Avenue include the installation of a Tideflex (backflow) check valve on the existing 18-inch diameter storm sewer. The check valve would prevent stormwater runoff from backing up through the storm sewer system into the low lying area at the intersection of Morse Avenue and Chase Avenue.

The Newport Lane project area is an existing residential street (Newport Lane) between Crescent Court and Sterling Court to the north and Candleridge Court to the south. The project area is bordered by residential townhomes to the east and west. Geographically, the site is located at Latitude 41.988805 and Longitude -88.168366.

Improvements at Newport Lane and Sterling Court within the Hearthwood Farms Subdivision include upsizing approximately 470 feet of existing 24-inch diameter storm sewer to a 30-inch diameter pipe. This would improve drainage from the low lying area at Candleridge Court to the detention basin at Wilmington Drive. The work is contained within the Newport Lane/Sterling Court ROW.

2.3 Alternative 3 – The Church Property

The Third alternative reviewed includes the construction of a stormwater detention basin located on the Church Property. This parcel was evaluated in an attempt to control flooding within the Tributary #2 West Branch of the DuPage River watershed through the construction of a flood storage basin at what is currently open space containing fallow field and degraded woodland along the eastern and southern limits. Although the Church Property was farmed in the past, it does not appear to have been farmed recently and is not suitable for farming currently due its current zoning as suburban residential property. The provisions of the Farmland Protection Act are therefore not applicable to the property. The Church Property is located to the east of Wayne Court, between Route 20 and Taylor Avenue, on the north side of the Village of Bartlett and immediately west of the Village of Streamwood (42.000366N, -88.175557E). The site is surrounded by single family residences to the south and west and an industrial site consisting of the Aluminum Coil Anodizing property to the east. Geographically, the Church Property is located in Section 35, Township 41 North, Range 9, East of the Third Principal Meridian. A detailed analysis of this option was studied by Christopher B. Burke Engineering and the Village of Bartlett as part of the project feasibility analysis. A brief description of this alternative is provided in this section.

The Church Property flood storage basin would have a footprint of approximately 6 acres. As designed, it was proposed to have a storage capacity of 32 acre-ft, and a maximum depth of 15 feet. Approximately 150,000 cubic yards of material would be excavated to construct the basin. Runoff would backup into the flood storage basin through a storm sewer line from the south when the existing sewer line on Taylor Avenue becomes surcharged. Slopes surrounding the basin would be a maximum of 4:1 and would tie into the surrounding grades.

The primary inlet to the flood storage basin would be a relief storm sewer constructed to allow surcharged stormwater runoff from the existing Taylor Avenue storm sewer to backup into the basin. The connection would likely be made at the intersection of Taylor Avenue and Chase Avenue at an elevation slightly higher than the existing storm sewer invert. This would allow low flow runoff to continue in the storm sewer along Taylor Avenue as it does currently while providing a relief outlet into the flood storage basin at a higher elevation. The flood storage basin would temporarily store surcharged stormwater runoff during intense storm events and then release the stored water back into the Taylor Avenue storm sewer. An emergency spillway would also be created.

Construction methods, materials, and equipment were proposed to be consistent with normal construction methods. Typical construction equipment such as bulldozers, skid loaders, scrapers, backhoes, and haul trucks were proposed to complete the construction at the site. The majority of work for this project would consist of excavation of earthen material from the proposed flood storage basin. The project also included associated infrastructure improvements and landscaping. Construction access to the site was proposed from either Route 20 and/or the Prospect Avenue right-of-way. The areas disturbed by construction would be restored using a combination of native plantings. Wetland plantings would occur around shallow areas of the flood storage basin and native prairie plantings would be

placed on the basin side slopes and around the basin. Construction staging would occur in the areas surrounding the project. It was anticipated that construction time would be approximately one year.

2.4 Alternatives Considered and Eliminated for Further Consideration

After recent flood events that have impacted the areas of concern, design engineers worked with the Village of Bartlett to identify projects that would reduce the risk of flooding for the impacted areas, specifically the north side of town. Numerous public meetings were held with affected residents (See Section 5.0 for the list of public meetings). The projects contemplated, and rejected due to prohibitive costs, public input and engineering constraints, included the following:

High Capacity Storm Sewers and Overland Flow Routes: The use of high capacity storm sewers was analyzed and it was determined that by sending the water downstream at an increased rate, this simply pushed the problem downstream. This was confirmed by the XP-SWMM modeling that showed the increase in peak flowrates and velocities downstream of the study area would increase the flood risk and streambank erosion along County Creek Tributary to the West Branch of the DuPage River. New overland flow routes were also evaluated and were discarded due to the significant existing infrastructure (railroad tracks and major County highways) that would be impacted as well as the increase in downstream flowrates. Therefore, the use of high capacity storm sewers and overland flow routes were discarded.

Floodproofing of Structures: The Village of Bartlett investigated the alternative to flood-proof the residential and commercial structures up to the anticipated 1% annual chance flood elevation. Due to the extreme depth of flooding, which was greater than 1.5 feet for many residential structures along Prospect Avenue and within Hearthwood Farms, this solution was discarded as infeasible.

Buyout of Properties: The Village of Bartlett investigated the alternative to purchase the impacted properties. Given the large number of properties affected (approximately 29) this was determined to be economically and politically infeasible.

Other Flood Storage Alternatives: The Village of Bartlett investigated several flood storage alternatives before identifying the preferred alternative. Identified flood storage sites were limited to the open space adjacent to the flooding areas. The flood storage sites included the Streamwood Parcel, the Prospect Avenue Commercial property, two open space parcels north of Taylor Avenue and open space adjacent to the Streamwood Parcel. Detailed XP-SWMM modeling was performed of the proposed flood storage areas to determine the flood risk reduction benefit resulting from the flood storage, and preliminary calculations were completed to determine ranges of cost for each flood storage area. Additionally, each flood storage area was evaluated to determine the feasibility of being able to construct the required flood storage volume by such factors as regulatory requirements, known environmental contamination, property ownership, etc.

3.0 Affected Environment and Consequences

3.1 Physical Environment

3.1.1 Geology, Groundwater, and Soils

Geological Setting

Surficial Geology and Topography

The topography and drainage of northwest Cook County is the result of glacial action that ended about 13,500 years ago. The glacial units were deposited by the Lake Michigan Lobe of the Wisconsinan glacier that flowed over the region leaving behind at least 19 moraines during the pulsing retreat. The materials deposited include tills of various compositions; sands and gravel deposited by streams and rivers flowing from the glaciers and by the discharge from glacial lakes. Sand, silts and clay were deposited in lakes dammed by the glaciers. Following the retreat of the glaciers, windblown loess sediments collected on the surface and organic sediments accumulated in low areas and remaining streams and rivers deposited alluvium in the floodplains. Within the region the thickness of these deposits generally range from 0 – 200 feet.

Glacial tills located within northwest Cook County belong to the Wedron Formation. Within the study area the following deposits of the Haeger Till Members of the Wedron Formation have been mapped; Valparaiso and West Chicago Moraines. These moraines dominate the surface geology of the study area; trending in a north south orientation. The Wedron Formation is mostly glacial till with lenses and beds of gravel, sand, silt, and clays, as well as areas of loess. The land surface within the study area is generally gently rolling to nearly flat, natural elevation of approximately 800 feet with underlying bedrock mapped at approximately 650 feet, making the till deposits approximately 150 feet deep.

Bedrock and Structural Geology

The study area is situated on the northeastern flank of the gently sloping Kankakee Arch, where the surface bedrock formation dips easterly. Paleozoic in origin, the Kankakee Arch is linked to the Wisconsin Arch to the northwest and the Cincinnati Arch to the southeast. Within the study area bedrock formations are generally buried by glacial drift. The upper or "surface" bedrock in the study area consists entirely of Silurian dolomite. The bedrock surface of the dolomite is weathered and contains many valleys due to past exposure. The surface of the dolomite beneath the overburden is fractured from weathering and may not provide solid footing for construction due to looseness when exposed. Overall, the bedrock is intact below the surface weathered zone, can support significant loads, and provides a suitable base for most construction projects, including bridge foundations and highway piers.

The nearest known fault in the vicinity of the study area is the Sandwich fault, located about 80 km (50 mi) southwest. The fault is about 193 km (120 mi) long, running from Ogle to Will Counties. Seismic activity within this study area is low.

Groundwater Resources

The study area contains groundwater resources and aquifers, within the surficial glacial deposits and within the bedrock. Within the surficial deposits, the accessible shallow aquifers can be found in the lenses of sands and gravels found in the glacial till. The aquifers are generally connected hydrologically and are recharged directly by seepage from precipitation.

Within the bedrock, the shallow dolomite produces water in varying quantities depending on the presence of water-bearing sands in the overlying drift. Water within the dolomite is found in fractures, joints and cavities, as well as along the weathered bedrock surface. The shallow dolomite aquifer is separated from deeper aquifers by the shales of the Maquoketa Group. Below the shale is the Cambrian-Ordovician aquifer, a group of hydrologically connected rocks. The Cambrian-Ordovician aquifer is the most developed deep aquifer within the Chicago region and generally speaking is comprised of the St. Peter Sandstone.

According to the U.S. Environmental Protection Agency (USEPA) website (http://www.epa.gov/safewater/sourcewater/pubs/qrg-reg5.pdf) there are no sole source aquifers in Illinois. The ISGS also publishes a map titled *Potential for Aquifer Recharge* (Berg et al. 1990). The study area has a low potential for aquifer recharge and consequently a low potential for groundwater contamination.

Soils

Modern soils formed upon all deposits historically supporting diverse floristic communities such as; savanna, prairie, woodlands, flatwoods, and wetlands of many types. Soils within the study area fall into two taxonomic soil categories: mollisols and alfisols. Mollisols are organic rich soils, while alfisols are a clay rich brown to gray-brown soils. Compressed clays, undisturbed by activity, exhibit good engineering properties. Most of the soils within the study area have been extensively altered; originally this alteration consisted of farming, but now urbanization of the study area is the main factor. Many areas of soils have been cut, graded, filled or covered up. Very little undisturbed soil remains within the study area.

Based on the Natural Resources Conservation Service (NRCS) soil mapping (Soil Survey of DuPage County, Illinois) the following soil series are located within the project area, including Alternative 2 – Proposed Action and Alternative 3 – The Church Property:

Milford silty clay loam (69)
The Milford series consists of very deep, poorly drained and very poorly drained soils formed in lacustrine sediments. These soils are on glacial lake plains. Slope ranges from 0 to 2 percent. Permeability is moderately slow. Native vegetation is marsh grasses and sedges.

Drummer silty clay loam (152)
The Drummer series consists of very deep, poorly drained soils formed in loess or other silty material and in the underlying loamy stratified outwash on nearly level or depressional parts of outwash plains, stream terraces, and till plains. Slope ranges from 0 to 2 percent. Permeability is moderate. Native vegetation is hydrophytic grasses, reeds, and sedges.

Varna silt loam (223B)
The Varna series consists of very deep, moderately well drained soils on till plains. They formed in up to 46 cm (18 inches) of loess or silty material and in the underlying silty clay loam or clay loam till. Slope ranges from 1 to 18 percent. Permeability is slow. Native vegetation is prairie grass.

Ashkum silty clay loam (232)
The Ashkum series consists of very deep, poorly drained soils on till plains. They formed in colluvial sediments and in the underlying silty clay loam till. Slope ranges from 0 to 3 percent. Permeability is moderately slow. Native vegetation is marsh grasses and sedges.

Symerton silt loam (294B)
The Symerton series consists of very deep, moderately well drained soils formed in a thin mantle of loess, loamy outwash, and in the underlying till or lacustrine sediments. They are on till plains or former glacial lake plains. Slope ranges from 0 to 10 percent. Permeability is moderate in the loess and loamy outwash, and moderately slow or slow in the till or lacustrine sediments. Native vegetation is tall prairie grasses.

Markham silt loam (531B)
The Markham series consists of very deep, moderately well drained soils on Wisconsin till plains. They formed in a thin layer of loess or silty material and in the underlying silty clay loam till. Slopes range from 0 to 20 percent. Permeability is slow. Native vegetation was probably prairie grass having recent encroachment of hardwood trees.

Urban land (533 and 534)
Soils mapped as Urban land can include natural soil materials that have been moved around by humans, construction debris, materials dredged from waterways, coal ash, municipal solid waste, or a combination of any or all of the above. Characteristics of the urban soil depend on how deep the site has been excavated during construction and if new materials were brought in and mixed with the original soil materials, the properties of the original natural soil and the past uses of the site. Many times topsoil is removed from the site prior to construction and may or may not be returned to the site. After excavation, subsoil may be placed as fill over topsoil. These characteristics and past uses will affect current soil properties.

Muskego and Houghton mucks (1903)
The Muskego and Houghton series consist of very deep, very poorly drained soils formed in herbaceous organic material over coprogenous limnic material (sedimentary peat) on glacial lake plains and flood plains. Slope ranges from 0 to 2 percent. Permeability is moderate or moderately rapid in the herbaceous sapric material and slow in the coprogenous material. Natural vegetation is dominantly grasses, reeds, and sedges with scattered hardwoods.

3.1.1.1 Alternative 1 – No Action Alternative

If no action is taken, there would be no ground disturbed and there would be no impact to geology, groundwater or soils.

3.1.1.2 Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)

Significant soil excavation would occur as a result of the stormwater management basin construction as part of the proposed action. The proposed improvements at the Streamwood Parcel include excavating approximately 75-100 acre-ft of additional stormwater storage volume. The average excavation depth would be approximately 6-7 feet and approximately 118,000 cubic yards of soil would be excavated. The proposed improvements at the Hearthwood Farms site would create approximately 16 acre-ft of additional stormwater storage volume on a 3.5 acre open parcel. The average excavation depth would be approximately 5-10 feet and approximately 27,225 cubic yards of soil would be excavated. The Crest Avenue and Taylor Avenue site does not include excavation, however, a small 1-2 ft high berm is proposed within the ROW of Taylor Avenue to prevent overflow from the wetland area to the north from inundating the low point on Crest Avenue. The storm sewer improvements at Morse Avenue and Newport Lane involve minor excavation of road surface and subgrade material as well as trench backfill material surrounding the existing storm sewer pipes.

The majority of soil excavated from each site would be hauled off-site by the contractor. The excess material would be the responsibility of the contractor to find a suitable disposal site outside of regulatory floodplains/wetlands (all spoils should be disposed of in licensed landfill or facility if possible). Topsoil would be removed from the construction area prior to excavation and stockpiled on the site. A suitable depth of topsoil would be replaced following excavation to allow vegetation to be established at the site following construction.

A subsurface soils exploration was completed by Testing Service Corporation for the Streamwood Parcel. The soils exploration included a field investigation, soil borings and laboratory testing. Four soil borings were drilled to an approximate depth of 20 feet below existing grade in the western and southern portions of the site. Surficial topsoil was approximately 12 inches thick at one boring location and extended 2.5 to 5 feet below existing grade at the remaining boring locations. The deeper topsoil at two borings appeared to consist partially of fill. Therefore, the results of the soil borings indicate that the majority of the soils to be removed from the Streamwood parcel site would be primarily topsoil, clay, and areas of mixed fill.

As authorized by the Clean Water Act, a National Pollution Discharge Elimination System (NPDES) Permit for construction site stormwater runoff would be required and be obtained prior to construction. This permit requires the implementation of construction site best management practices (BMPs) to prevent soil erosion and soil loss. Potential BMPs that may be installed include silt fence, erosion mat, inlet protection, and temporary seeding. Following the completion of construction, the site would be restored using topsoil and vegetation would be established to stabilize the site.

No groundwater or geologic impacts would be expected from the construction of the Village of Bartlett Flood Mitigation Project.

3.1.1.3 Alternative 3 – The Church Property

The Church Property flood storage basin would have a footprint of approximately 6 acres. As designed, it was proposed to have a storage capacity of 32 acre-ft, and a maximum

depth of 15 feet. The approximately 15 foot depth of material would be removed to create approximately 5 feet of effective storage volume. The total site area is approximately 10 acres. Approximately 150,000 cubic yards of material would be excavated to construct the basin. Slopes surrounding the basin would be a maximum of 4:1 and would tie into the surrounding grades.

As with the proposed action, a majority of the soil excavated from the site would be hauled off-site by the contractor. The excess material would be the responsibility of the contractor to find a suitable disposal site outside of regulatory floodplains/wetlands. Topsoil would be removed from the construction area prior to excavation and stockpiled on the site. A suitable depth of topsoil would be replaced following excavation to allow vegetation to be established at the site following construction.

As with the proposed action and as authorized by the Clean Water Act, a National Pollution Discharge Elimination System (NPDES) Permit for construction site stormwater runoff would be required and obtained prior to construction. This permit requires the implementation of construction site best management practices (BMPs) to prevent soil erosion and soil loss. Potential BMPs that may be installed include silt fence, erosion mat, inlet protection, and temporary seeding. Following the completion of construction, the site would be restored using topsoil and vegetation would be established to stabilize the site.

No groundwater or geologic impacts would be anticipated if the Church Property flood storage basin were constructed.

3.1.2 Water Resources and Water Quality

The proposed flood control project is located within the watershed of West Branch Tributary #2 (Country Creek) and the West Branch DuPage River. Although there are no named waterways within the project area, the area contains wetlands and primarily man-made or altered drainage channels. Drainage channels within the project area consist of narrow linear roadside ditches with trapezoidal cross-sections. Portions of the drainage channels empty into the municipal storm sewer system. A high percentage of the land within the West Branch DuPage River watershed is residentially developed (32.8% of total area).

Ultimately, stormwater runoff in the flood control project area discharges into the West Branch Tributary #2 (Country Creek) approximately 2 miles upstream from the West Branch DuPage River. Portions of the 35 mile long West Branch DuPage River are on Illinois' 303(d) list of impaired waters for various contaminants. Project area runoff is directly tributary to a reach of the West Branch DuPage River that is identified as impaired for manganese, dissolved oxygen, and fecal coliform. The source of the elevated concentrations of manganese and fecal coliform is urban runoff and storm sewers.

3.1.2.1 Alternative 1 – No Action Alternative

Under this alternative there would be no impact to water resources or water quality. The existing flooding would remain.

3.1.2.2 Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)

As part of the proposed BFMP, the majority of stormwater runoff generated in the area would drain into 2 new flood storage basins; one on the Streamwood Parcel, which provides approximately 75-100 acre-ft of additional stormwater storage volume and the second on a 3.5 acre open parcel (Prospect Commercial Parcel), which provides approximately 16 acre-ft of additional stormwater storage volume. The flood control berm on Taylor Avenue and the storm sewer improvements on Morse Avenue and Newport Lane would have minimal to no effect on water resources or water quality. In the constructed basins, stormwater would be safely stored at lower elevations in the basins rather than flooding adjacent residential structures. The proposed basins would discharge to the 54" diameter storm sewer line running south down Prospect Avenue. The Village of Bartlett Flood Mitigation Project discharges into the West Branch Tributary #2 approximately 2 miles upstream from the West Branch DuPage River.

Although the current designs of the proposed stormwater storage basins are primarily for flood control purposes, some stormwater pollution control would also be achieved. The basins would achieve a modest level of stormwater sediment control. The stormwater storage basins would also reduce floatables and other litter from travelling downstream and into the ditches and municipal stormwater system. The basins would have no long-term adverse impacts to water resources. It is expected that the proposed project will have a positive impact on the 303(d) impaired waters. The native plantings in and around the basins will have a cleansing effect on the stormwater, assimilating water pollutants such as fecal coliform and manganese prior to discharge into the receiving waters.

Temporary impacts to downstream water resources may occur during the construction of the BFMP. Soil Erosion and Sediment Control measures are required under local and state regulations, and these measures would be employed during the construction phase.

Government permits required under this project include:

1. An NPDES construction site stormwater discharge permit from the Illinois Environmental Protection Agency (IEPA). The permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP contains a soil erosion and sediment control plan that incorporates the use of BMPs to limit erosion from occurring at the construction sites and ensuring proper stabilization of the site following construction. The use of silt fence, tracking pads, inlet protection, and vegetation seeding and erosion control matting would likely be included as part of the plan. The erosion control measures will comply with federal, state and local soil erosion and sediment control regulations

2. Illinois Department of Natural Resources (IDNR) Interagency Wetland Policy Act (IWPA) compliance authorization. Compliance with the IWPA will be required by the IDNR for impacts to wetlands. The Village of Bartlett and its consultants have coordinated directly with the IDNR to address compliance with the IWPA. It was determined that the wetland disturbance associated with the proposed BFMP would be classified "minimal" and onsite mitigation can be provided at a 1:1 ratio. A wetland enhancement plan was prepared and would result in a net increase of 1.0 acres of wetland, thereby exceeding the 1:1 "no net loss" ratio.

3.1.2.3 Alternative 3 – The Church Property

The design for this alternative is primarily for flood control purposes; however stormwater pollution control would also be achieved. The flood storage basin with this alternative is proposed to have permanent pools of water. This design generally achieves a higher level of stormwater pollution sediment control than a "dry" basin design. Besides the improvement to downstream water quality, the Church Property flood control basin would have no long-term impacts to water resources. It is expected that the proposed project will have a positive impact on the 303(d) impaired waters. The native plantings in and around the basins will have a cleansing effect on the stormwater, assimilating pollutants prior to discharge into the receiving waters.

Temporary impacts to downstream water resources may occur during the construction of the Church Property flood control basin. An NPDES construction site stormwater runoff permit would be required for this project. The permit requires the use of BMPs to prevent erosion from occurring at the construction site and ensuring proper stabilization of the site following construction. An erosion control plan would be developed as part of the project design. The erosion control plan would contain specific measures to reduce the likelihood of construction site erosion. It is likely that silt fence, tracking pads, inlet protection, and erosion mat would be included as part of the erosion control plan.

Specific permit requirements for this project are unknown since there was no formal correspondence with regulatory agencies. Likely government permits required under this project would include an NPDES construction site stormwater discharge permit and a USACE Section 404 Permit. Similar conditions would need to be met as described for Alternative 2.

3.1.3 Floodplain Management (Executive Order 11988)

Proposed project is not located within identified floodplain areas as per Flood Insurance Rate Map (FIRM) for Cook County, Illinois and Incorporated Areas, Map Number 17031C0306 J, revised August 19, 2008. FEMA applies the Eight-Step Decision-Making Process to ensure that it funds projects consistent with Executive Order (EO) 11988. The NEPA compliance process involves essentially the same basic decision-making process to meet its objectives as the Eight-Step Decision-Making Process. Therefore, the Eight-Step Decision-Making Process has applied through implementation of the NEPA process. Documentation displaying the eight-step planning process is included in Appendix B.

3.1.3.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no changes to the existing conditions and flooding would continue within the local watershed.

3.1.3.2 Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)

The proposed BFMP would reduce stormwater flooding within the area. A detailed hydrologic and hydraulic analysis was conducted to evaluate the impacts of the proposed project. The analysis showed that peak flow rates and water surface elevations would be

decreased by the flood storage basins for rain events up to, and including, the 100-year storm event. The hydrologic and hydraulic analysis also evaluated the impact the proposed basins would have on structure and street flooding. A detailed report for the FEMA grant shows more than 50 residential properties that would benefit from the Proposed Action. Modeling indicates that flood elevations in the residential areas would be reduced by over a foot. The report contains numerous detailed results. Below is a summary table showing the flow control and storage volume for several rain events for the Streamwood Parcel Basin and the Prospect Commercial Parcel Basin. The effects of the flood control berm on Taylor Avenue and the storm sewer improvements on Morse Avenue and Newport Lane are minor and were not included in the hydrologic and hydraulic analysis.

Table 3-1

Streamwood Parcel Basin Design Characteristics
Hydrologic & Hydraulic Analysis

Storm Event	Peak Basin Inflow (cfs)	Peak Basin Outflow (cfs)	Peak Water Surface Elevation (feet)	Peak Storage Provided (acre-feet)
2-year	44.9	6.6	784.5	64.8
10-year	82.5	7.6	787.1	99.7
50-year	138.7	8.2	790	143
100-year	200	8.4	791.4	166.9

Table 3-2

Prospect Commercial Basin Design Characteristics
Hydrologic & Hydraulic Analysis

Storm Event	Peak Basin Inflow (cfs)	Peak Basin Outflow (cfs)	Peak Water Surface Elevation (feet)	Peak Storage Provided (acre-feet)
2-year	10.4	0.8	780.7	3.6
10-year	24.1	0.8	783.6	9.7
50-year	33	5	787.2	17.2
100-year	36.8	26.2	788.1	19.1

The proposed BFMP is located within the West Branch DuPage River Watershed in the Village of Bartlett. The project is not within any federally identified floodplain. Over the course of time, development within the West Branch DuPage Watershed has impacted the area and most of the historic natural land cover has been replaced by impervious surfaces. Natural drainageways and open channels have been placed into storm sewers or realigned/straightened into trapezoidal ditches that do not include natural floodplains. Remaining open channels are more typical of roadside ditches than natural streams.

There are no federal, state, or local floodplain management regulations for this project because it is not located in an identified floodplain. However, a hydrologic and hydraulic analysis was conducted to review impacts of the project upstream and downstream of the

project location and ensure that the project is consistent with proper floodplain management. The BFMP would provide storage for stormwater runoff and reduce peak flow rates and water surface elevations within the vicinity and downstream of the project. The hydrologic and hydraulic analysis showed that the project would not cause any adverse impacts upstream or downstream of the project location.

No impacts to the regulatory 100-year floodplain are anticipated, and this alternative is in compliance with EO 11988.

3.1.3.3 Alternative 3 – The Church Property

The Church Property flood storage basin would also be located outside of the 100-year floodplain. The project would include the installation of new storm sewer to divert stormwater into the new flood storage basin. The basin would provide storage area and reduce stormwater runoff peak flow rates and water surface elevations downstream of the basin. The storm sewer diversion would increase the capacity of the drainage system and reduce flooding along the storm sewer route. Preliminary hydrologic and hydraulic analysis prepared as part of a planning level evaluation of this alternative displayed that there were no adverse impacts due to the project. However, a more detailed analysis would need to be conducted to verify the preliminary findings.

As part of the evaluation process for the Church Property, a planning level hydrologic and hydraulic analysis was conducted to assess the flood control benefits of the project. The analysis displayed that flooding would be reduced by the implementation of this project.

Table 3-3

Church Property Basin Design Characteristics
Hydrologic & Hydraulic Analysis

Storm Event	Peak Basin Inflow (cfs)	Peak Basin Outflow (cfs)	Peak Water Surface Elevation (feet)	Peak Storage Provided (acre-feet)
2-year	0.3	0.3	786	0
10-year	92.1	34.1	790.8	31.9
50-year	105.3	40.8	793.2	47.9
100-year	110	47.6	794.3	55.2

No impacts to the regulatory 100-year floodplain are anticipated, and this alternative is in compliance with EO 11988.

3.1.4 Air Quality

The Clean Air Act (CAA) requires the United States Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards: primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly; along with

secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation and buildings. Current criteria pollutants are: Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Ozone (O3), Lead (Pb), Particulate Matter (PM10), and Sulfur Dioxide (SO2).

The USEPA designates areas as either NAAQS attainment or non-attainment areas. An area is considered a non-attainment area if it does not meet the national primary or secondary air quality standards for a pollutant. Based on information obtained from the USEPA website, Cook County, Illinois is considered within attainment status for all pollutants except nonattainment for lead in Chicago, PM-2.5 1997 in Chicago-Gary-Lake County, IL-IN (IL portion) and marginal for 8-Hr Ozone 2008 in Chicago-Naperville, IL-IN-WI (USEPA website, see Section 7.0).

3.1.4.1 Alternative 1 – No Action Alternative

If no action is taken, there would be no construction activities that would occur. Therefore, no impacts to air quality would take place.

3.1.4.2 Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)

The construction of the proposed BFMP may result in temporary, short-term impacts to air quality. Impacts may result from the operation of diesel and gasoline engines associated with excavation, grading, and other equipment during the construction phase. Also, during the construction phase, exposed soil could temporarily increase airborne particulate matter in the local area. The proposed project would not create any long-term increases in pollutants that adversely impact air quality.

To reduce the temporary impacts to air quality, measures would be undertaken during the construction of the proposed BFMP. To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum. To minimize the impact of airborne particulates, open construction areas would be minimized to the extent practicable, and construction site best management practices (BMP's) for dust control would be enacted that comply with the IEPA's standards in the ILR10 General Construction Permit under the USEPA's NPDES program.

3.1.4.3 Alternative 3 – The Church Property

The construction of Alternative 3, the development of a flood storage basin on the Church Property, may result in temporary, short-term impacts to air quality. Impacts may result from the operation of diesel and gasoline engines associated with excavation, grading, and other equipment during the construction phase. Also, during the construction phase, exposed soil could temporarily increase airborne particulate matter in the local area. The proposed project would not create any long-term increases in pollutants that adversely impact air quality.

To reduce the temporary impacts to air quality, measures would be undertaken during the construction of Alternative 3. To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum. To minimize the impact of airborne particulates, open construction areas would be minimized, and construction site best

management practices (BMP's) for dust control would be enacted that comply with the IEPA's standards in the ILR10 General Construction Permit under the USEPA's NPDES program.

3.2 Biological Environment

3.2.1 Terrestrial and Aquatic Environment

The proposed project locations are within the Village of Bartlett and the Village of Streamwood, both highly developed suburban municipalities located in the northwest suburbs of the Chicago Metropolitan area. Bartlett and Streamwood are primarily residential and commercial communities with some light industrial operations. The project locations include proposed stormwater storage basin facilities and minor flood control and storm sewer improvement areas. All of the improvements would occur on land that historically was farmed but more recently has been disturbed, primarily through residential and commercial development.

Common plant species observed in the vegetated areas of the project sites include: bluegrass (*Poa* sp.), fescue (*Festuca* sp.), reed canary grass (*Phalaris arundinacea*), goldenrod (*Solidago* sp.), common reed (*Phragmites australis*), common buckthorn (*Rhamnus cathatrica*), dogwood (*Cornus* sp.), Eastern cottonwood (*Populus deltoides*) and sandbar willow (*Salix interior*).

A wetland delineation was conducted on the Streamwood Parcel in April, 2009. The results of this delineation are included in Appendix B. One drainageway and one wetland were identified with a total area of 11.6 acres. Dominant vegetation species identified in the wetland area included reed canary grass (*Phalaris arundinacea*), box elder (*Acer negundo*), common fox sedge (*Carex stipata*), cattail (*Typha* sp.) and sandbar willow (*Salix interior*). The linear drainageway was unvegetated and contained flowing water at an approximate depth of 1-foot at the time of the field investigation.

A wetland/waters assessment of the remaining 5 study areas was conducted in March, 2013. One wetland associated with a constructed stormwater detention basin was observed on the Prospect Commercial Parcel. The wetland, approximately 0.23 acre in size, was dominated by dogwood (*Cornus* sp.), Eastern cottonwood (*Populus deltoides*), sandbar willow (*Salix interior*) and common reed (*Phragmites australis*).

No site specific wildlife surveys were conducted; however, common urban wildlife has been observed at the sites. No endangered or threatened species are known to exist at the site.

3.2.1.1 Alternative 1 – No Action Alternative

Under this alternative there would be no anticipated changes to the site's existing terrestrial, biologic, or aquatic conditions.

3.2.1.2 Alternative 2 – BFMP (Proposed Action)

The five locations that comprise Alternative 2 consist of the following environments:

- The Streamwood Parcel, at the southeast corner of North Avenue and Prospect Avenue, is a wetland complex and linear, open channel drainage ditch that parallels Prospect Avenue.

- The Prospect Commercial Parcel, at the northeast corner of Wilmington Drive and Prospect Avenue, is primarily mowed turf grass and a dry detention basin.

- The Crest Avenue and Taylor Avenue Flood Control parcel, on the north side of Taylor Avenue, between Marion Avenue and Berteau Avenue, is primarily mowed turf grass.

- The two storm sewer improvement areas on Morse Avenue and Newport Lane are located within the existing roadways and are not vegetated.

As part of the BFMP, flood storage basins would be created on the Streamwood Parcel and Prospect Commercial Parcel, with a total footprint of about 19.2 acres. The areas of the basins would be planted with a variety of native plant species. The landscaping would include a mixture of grasses and forbs as appropriate for the site conditions. Areas on the basin bottoms and lower slopes would be planted with vegetation species that can tolerate the expected frequent inundation levels while areas further upslope from the basin bottoms would be planted with prairie plantings tolerating variable soil moisture conditions with only occasional flooding. Following construction and vegetation establishment in the proposed flood storage basins, expectations are that the site would establish an environment that equals or exceeds the quality of the existing area in terms of native plant vegetation and diversity of vegetation. In addition, based upon other similar stormwater management basins created in the area, the water feature attracts and provides habitat for resident water fowl, amphibians, small mammals, and migratory bird species.

Also as part of the BFMP, a small 1-2 ft high berm would be constructed within the ROW of Taylor Avenue and storm sewer improvements would occur on Morse Avenue and Newport Lane. Following construction, to the extent practicable, these areas would be returned to pre-construction conditions and would have no effect on the terrestrial or aquatic environment.

3.2.1.3 Alternative 3 – The Church Property

The location of Alternative 3 is a vacant parcel with mowed old field vegetation and turf grasses and a variety of trees and shrubs scattered throughout the eastern portion of the property. A flood storage basin, with an approximate footprint of 7.6 acres, would be excavated out of the parcel and the landscaping surrounding the basin would include native prairie plantings and selected trees as appropriate for the area. It is believed that the implementation of Alternative 3 would have a neutral impact to the environment. Following the flood storage basin construction, the area would remain as open space, a similar state to that which currently exists. In addition, based upon other similar stormwater management basins created in the area, the water feature attracts and provides habitat for resident water fowl, amphibians, small mammals, and migratory bird species.

3.2.2 Wetlands (Executive Order 11990)

Executive Order 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. The NEPA compliance process requires federal agencies to consider direct and indirect impacts to wetlands, which may result from federally funded actions.

3.2.2.1 Alternative 1 – No Action Alternative

In the No Action Alternative there would be no construction activities; therefore, no impacts to wetlands.

3.2.2.2 Alternative 2 – BFMP (Proposed Action)

As reported in Section 3.2.1, approximately 9.6 acres of wetland would be disturbed with the proposed action. All of the wetland impacts associated with the BFMP would occur on the Streamwood Parcel and the Prospect Commercial Parcel. A "Letter of No Objection" (LONO) was obtained from the USACE for the construction of the flood storage basin on the Streamwood Parcel (See Appendix C). It is anticipated that a LONO also would be obtained from the USACE for the construction of the basin on the Prospect Commercial Parcel. The 3 remaining sites comprising the BFMP including the Crest Avenue and Taylor Avenue Flood Control berm site and the Newport Lane and Morse Avenue storm sewer sites, do not involve wetlands and therefore would have no effect on wetlands.

Consultation with the Illinois Department of Natural Resources (IDNR) regarding compliance with the Interagency Wetland Policy Act (IWPA) was conducted. It has been determined that the proposed project wetland disturbance would be classified as "minimal" and therefore onsite mitigation can be provided at a 1:1 ratio. A concept wetland enhancement/basin plan was developed that would establish 10.4 acres of wetland over the entire basin bottom, in conjunction with 2.2 acres of native prairie to be established upon the basin embankment. Resulting in a net gain of 1.0 acres of wetland on site, and a total restored native habitat area of 12.6 acres.

44 CFR Part 9 requires FEMA to avoid funding actions that adversely affect wetlands. An 8-step analysis checklist was completed to determine if adverse impacts to the wetland would occur and if those adverse impacts could be mitigated appropriately (Appendix B). Through the analysis and consultations with the USACE and IDNR it was determined that the proposed action would not adversely affect the wetland and that the modifications to the wetland would improve the quality of the wetland (Kehoe memo, dated March 20, 2013). Practical alternatives are not available in the proposed project area due to the development in the area as well as the need for the storm detention to be close to the area affected by the flooding. FEMA finds that since there are no practical alternatives and mitigation measures are sufficient to reduce the likelihood of adverse impacts to the wetland that the proposed action meets the requirements listed in 44 CFR Part 9.

3.2.2.3 Alternative 3 – The Church Property

A review of the National Wetland Inventory map covering the area of the Church Property was performed to screen for the possible presence of wetlands. A field investigation of the

site was conducted on March 13, 2013. The mapping indicated that there were no known wetlands present and the site visit revealed the presence of upland weedy species throughout the majority of the property. Based on available knowledge of the site, it is believed that there are no wetlands at the Church Property site and that no impacts to wetlands would occur as part of the Church Property flood control basin project. Before any construction activities would begin at the Church Property, however, a wetland delineation conducted during the growing season likely would be required by the regulatory agencies.

3.2.3 Threatened and Endangered Species

In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, the project area was evaluated for the potential occurrences of federally listed threatened and endangered species. The ESA requires any federal agency that funds, authorizes, or carries out an action to ensure that their action is not likely to jeopardize the continued existence of any endangered or threatened species (including plant species) or result in the destruction or adverse modification of designated critical habitats (FEMA 1996).

The United States Department of the Interior, Fish and Wildlife Service (USFWS) website was accessed to review their records for the likelihood of Federal Threatened or Endangered Species to be encountered in the project area. Per the website, 6 species are listed and may be present in Cook County: piping plover, Eastern prairie fringed orchid, Hine's emerald dragonfly, leafy-prairie clover, Mead's milkweed, and prairie bush clover. These species are not known to exist in the Bartlett area and additionally, the project areas are located within urbanized areas that do not have suitable habitat for any of the listed species.

- The piping plover (*Charadrius melodus*) requires lakeshore dunes and wide open sandy habitat which is not present on-site.
- The Eastern prairie fringed orchid, as stated by the USFWS, "…occurs in a wide variety of habitats, from wet to mesic prairie or wetland communities, including, but not limited to sedge meadow, fen, marsh, or marsh edge. It can occupy a very wide moisture gradient of prairie and wetland vegetation. It requires full sun for optimal growth and flowering, which ideally would restrict it to grass and sedge dominated plant communities. However, in some plant communities where there are encroaching species such as cattail and/or dogwood, the orchid may be interspersed or within the edge zones of these communities and thus can sometimes occur in partially shaded areas. The substrate of the sites where this orchid occurs includes glacial soils, lake plain deposits, muck, or peat which could range from more or less neutral to mildly calcareous. In some cases, the species may also occur along ditches or roadways where this type of habitat is present". The site consists of upland scrub-shrub woods surrounding cattail marsh wetland. No habitat suitable for the eastern prairie fringed orchid exists on site.
- The Hine's emerald dragonfly (*Somatochlora hineana*) requires spring fed wetlands, wet meadows, and marshes. Although the study area contains wetlands, the wetlands are not spring fed. Additionally, the USFWS recently has mapped critical habitat units for this species in the Chicagoland portion of northeastern Illinois. The USFWS has not identified any critical habitat units for the Hine's emerald dragonfly within this portion of Cook County, Illinois.

- Leafy-prairie clover (*Dalea foliosa*) is found in prairie remnants on thin soil over limestone. Higher and moderate quality associates include *Andropogon gerardii, A. scoparius, Sorghastrum nutans, Sporobolus heterolepis, Carex crawei, C. meadii, Eleocharis compressa, Juncus dudleyi, Allium cernuum, Apocynum* spp., *Hypericum sphaerocarpum, Phlox glaberrima* ssp. *interior, Pycnanthemum virginianum, Rudbeckia hirta, Satureja arkansana, Senecio pauperculus, Sisyrinchium albidum,* and *Solidago riddellii*.
- Mead's milkweed (*Asclepias meadii*) is found in late successional tallgrass prairie, tallgrass prairie converted to hay meadow, and glades or barrens with thin soil. Very common species of grass associated with Mead's milkweed include prairie dropseed *(Sporobolus heterolepis*), Indiangrass (*Sorghastrum nutans*) and big bluestem *(Andropogon gerardii*). Prairie forbs commonly found with Mead's milkweed were white prairie clover (*Petalostemum candidum*), purple prairie clover (*Petalostemum purpureum*), prairie gentian *(Gentiana puberula*) and prairie compass plant *(Silphium laciniatum*).
- Prairie bush clover (*Lespedeza leptostachya*) is found in dry to mesic prairies with gravelly soil. Common associates include *Andropogon gerardii, A. scoparius, Bouteloua curtipendula, Sorghastrum nutans, Sporobolus heterolepis, Stipa spartea, Amorpha canescens, Anemone patens, Aster ericoides, Aster laevis, Aster ptarmicoides, Aster sericeus, Baptisia leucophaea, Coreopsis palmata, Echinacea pallida, Euphorbia corollata, Heuchera richardsonii, Lespedeza capitata, Liatris aspera, Lithospermum canescens, Lithospermum incisum, Linum sulcatum, Oenothera serrulata, Phlox pilosa, Petalostemum candidum, Petalostemum purpureum, Psoralea argophylla, Psoralea esculenta, Solidago missouriensis, Solidago nemoralis, Solidago rigida, Viola pedata* and *Viola pedatifida*.

As previously noted, the open space within the project area consists of upland scrub-shrub woods adjacent to low-quality cattail marsh. During the field investigation, no areas dominated by the above-referenced, higher quality vegetation associated with leafy-prairie clover, Mead's milkweed or Prairie bush clover were noted within the study area. Thus, the Federal Emergency Management Agency has made a determination of no impact to federally-listed threatened or endangered species.

The Illinois Department of Natural Resources (IDNR) website was accessed to complete an EcoCAT (Ecological Compliance Assessment Tool). The completion of the online inquiry results in a database search of the Illinois Natural Heritage Database for the project area. Based on the completion of the EcoCAT and Section 7 processes, CBBEL concludes that no state-listed species or critical habitat exist within the project area.

3.2.3.1 Alternative 1 – No Action Alternative

The No Action Alternative would not disturb any ground area and therefore would not impact any threatened or endangered species.

3.2.3.2 Alternative 2 – BFMP (Proposed Action)

The proposed BFMP area consists of 5 separate project site locations containing a mix of vegetated open space and non-vegetated residential streets. Three of the 5 locations

involve disturbance to vegetated ground surface area and therefore have the possibility of encountering a protected plant or animal species.

The BFMP area has been screened for the potential presence of both federally protected species as well as state-listed species. Available databases were accessed to determine potential presence of protected species or habitat. It should be noted that these processes do not mean that a conclusive statement on the absence of species or habitat can be made; it only means that the protected species and habitat areas have not been noted in the general area of the project site or are unlikely to occur based on species habitat requirements or known associates. Additionally, no protected species were observed during the wetland and waters site assessments or delineation. FEMA provided an informal consultation to the USFWS on May 20, 2013 stating based on proposed project location and quality of wetland, FEMA has made a determination that impacts to federally listed species were not anticipated. USFWS responded by letter on June 6, 2013 stating that FEMA's determination included a reasonable rationale for a no effect determination and in the future if the agency makes this determination no consultation is necessary (Appendix C).

3.2.3.3 Alternative 3 – The Church Property

The Church Property project area, is primarily a level, mowed vacant field, has been screened for the potential presence of both federally protected species as well as state-listed species. Available databases were accessed to determine potential presence of protected species or habitat. It should be noted that these processes do not mean that a conclusive statement on the absence of species or habitat can be made. It only means that the protected species and habitat areas have not been noted in the general area of the project site or are unlikely to occur based on species habitat requirements or known associates. Additionally, no protected species were observed during the wetland and waters site assessment.

3.3 Hazardous Materials

Christopher B. Burke Engineering, Ltd. environmental resources staff completed a preliminary special waste screening of each alternative project site to assess the potential presence of special or hazardous wastes in the vicinity of each area. This evaluation was completed to identify sites that have reported a release or have the potential to release a hazardous substance into the environment. Sites reported to the U.S. Environmental Protection Agency (USEPA) and the Illinois Environmental Protection Agency (IEPA) because of a release or potential release of a hazardous substance into the environment are listed in the following databases including the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). CERCLIS sites that rank high enough to be eligible for USEPA to expend funds for clean-up because the sites pose a risk to human health or the environment is placed on the National Priorities List.

The following databases were evaluated as part of the preliminary special waste screening for each alternative site with identified parcels listed as sources for the release or potential release of a hazardous substance into the environment.

1. U.S. Environmental Protection Agency Toxics Release Inventory (TRI) database: http://www.epa.gov/enviro/html/tris/tris_query.html
2. Illinois Environmental Management Agency Hazardous Materials Incident Reports: http://tier2.iema.state.il.us/FOIAHazmatSearch/
3. Illinois State Fire Marshal Underground Storage Tank search: http://webapps.sfm.illinois.gov/ustsearch/
4. Illinois Environmental Protection Agency Bureau of Land database: http://epadata.epa.state.il.us/land/inventory/
5. Illinois Environmental Protection Agency Leaking Underground Storage Tank Incident Tracking database: http://epadata.epa.state.il.us/land/ust/
6. U.S. Environmental Protection Agency Resource Conservation and Recovery Act Information database: http://www.epa.gov/enviro/html/rcris/rcris_query_java.html
7. Illinois Environmental Protection Agency Office of Brownfields Assistance database: http://epadata.epa.state.il.us/land/brownfields/
8. Illinois Environmental Protection Agency Site Remediation Program database: http://epadata.epa.state.il.us/land/srp/
9. National Response Center database: http://www.nrc.uscg.mil/pls/apex/f?p=109:2:0::NO:
10. U.S. Environmental Protection Agency Superfund Site Information database: http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm

It should be noted that the results presented below are based on a database search only and a comprehensive Preliminary Environmental Site Assessment (PESA) was not completed for the study areas. No special waste/hazardous waste field investigations were completed by CBBEL.

As discussed below, Alternative 3 – The Church property, is located to the immediate west and in close proximity to a heavy industrial site consisting of the Aluminum Coil Anodizing Corp. As a result of a proposed project to extend Prospect Avenue to the north and connect with Route 20, the Village of Bartlett evaluated the proposed Prospect Avenue right-of-way which is part of the Aluminum Coil Anodizing Corp. property. The Village of Bartlett evaluation included completion of a Phase I and Phase II Environmental Site Assessment Report which identified potential special waste/hazardous waste concerns with this property to the immediate east of the Church property.

3.3.1 Alternative 1 – No Action Alternative

If no action is taken, there would be no ground disturbed and hazardous materials would not be encountered or disturbed.

3.3.2 Alternative 2 – BFMP (Proposed Action)

The proposed project is generally located to the east of Oak Avenue, between Route 20 and Devon Avenue. The proposed action includes work at five project locations including the Streamwood Flood Storage parcel at the southeast corner of North Avenue and Prospect Avenue, the Hearthwood Farms Flood Storage parcel at the northeast corner of

Wilmington Drive and Prospect Avenue, the Crest Avenue and Taylor Avenue Flood Control parcel on the north side of Taylor Avenue, between Marion Avenue and Berteau Avenue and two storm sewer improvement areas at Morse Avenue and Newport Lane.

The review of regulatory databases indicated that none of the five project sites that make up the proposed action were identified as parcels of concern. None of the five project sites were identified as reporting a release or having the potential to release a hazardous substance into the environment.

If hazardous materials are found during construction, appropriate measures would be taken to identify, remove and dispose of the materials or contaminated soils. Any hazardous materials encountered would be handled in accordance with applicable rules and regulations.

3.3.3 Alternative 3 – The Church Property

The Church property is located to the east of Wayne Court, between Route 20 and Taylor Avenue, on the north side of the Village of Bartlett and immediately west of the Village of Streamwood. The property is located to the immediate west of the Aluminum Coil Anodizing, Corp. property which has an address of 501 East Lake Street in Streamwood, Illinois. The review of regulatory databases indicated that the Church property was not identified as reporting a release or having the potential to release a hazardous substance into the environment.

However, the Aluminum Coil Anodizing, Corp. property to the immediate east of the Church property was identified as reporting a release or having the potential to release a hazardous substance into the environment. This adjacent property was identified in the following databases:

- U.S. Environmental Protection Agency Toxics Release Inventory (TRI) database: http://www.epa.gov/enviro/html/tris/tris_query.html
- Illinois Environmental Protection Agency Bureau of Land database: http://epadata.epa.state.il.us/land/inventory/
- U.S. Environmental Protection Agency Resource Conservation and Recovery Act Information database: http://www.epa.gov/enviro/html/rcris/rcris_query_java.html

The Aluminum Coil Anodizing, Corp. company website indicates that the firm provides anodized aluminum, lighting sheet, anodized foils, decorative metals, interior & exterior architectural aluminum, painted & coated products and chemical cleaning. A review of the Phase I and Phase II Environmental Site Assessment Report, prepared by Deigan and Associates, LLC, indicates that this adjacent site contains an active waste water pretreatment settling pond and a formerly closed and backfilled waste water pretreatment settling pond. The report concludes that there may be a recognized environmental condition related to potential surface and /or subsurface presence of contamination on this immediately adjacent site. According to the results of the Phase II findings, elevated concentrations of nickel and chromium were documented in the settling pond sediment sample.

Construction of a regional storm water management facility at the Church property would require significant excavation and earth moving operations in close proximity to the contaminated soil and potential subsurface contamination at the adjacent Aluminum Coil Anodizing, Corp. property to the east. Significant adverse environmental consequences could be expected if subsurface contamination and contaminant migration travelled to the west during the construction of the Church property storm water management basin. Significant additional costs would be incurred to provide Phase I and Phase II environmental surveys of the Church property to evaluate the parcel for current contamination as well as the potential for future contamination due to the site's proximity to the adjacent Aluminum Coil Anodizing, Corp. property. Additional design and construction implementation costs could be expected to remove potentially contaminated soils from the site as well as construct a subsurface barrier to prevent potential contaminant migration.

3.4 Socioeconomics

3.4.1 Zoning and Land Use

The proposed project would be located on portions of existing parcels within the Village of Bartlett, Illinois and one existing parcel within the Village of Streamwood, Illinois, as well as within public road rights-of-way within residential streets in the Village of Bartlett. Review of historic aerial photographs reveals that the area was primarily agricultural land in the past. Urbanization transformed this area to residential and commercial/light industrial use. The current zoning of the parcels is residential, commercial, industrial or public land.

The parcel in the Village of Streamwood, located south of North Avenue and east of Prospect Avenue, is currently vacant open land the majority of which is wetlands. The proposed flood storage basin would occupy the entire parcel and would remain open land. This parcel is currently zoned general industrial.

The parcel located north of Wilmington Drive and east of Prospect Avenue is adjacent to an existing commercial development. The proposed flood storage basin would be located on vacant land immediately north and east of the developed commercial site and would not negatively affect the operation of the business. This parcel is currently zoned commercial.

The parcel located immediately north of and adjacent to Taylor Avenue at Crest Avenue is open land east of an elementary school. The proposed flood control berm would be constructed and the land would remain open. This parcel is currently zoned public land.

The project sites for the storm sewer improvements; one on Morse Avenue between Chase Avenue and Hale Avenue, and the other on Newport Lane approximately 350' north of Devon Avenue, are existing residential streets. These project sites are within areas currently zoned residential.

A current zoning map for this part of the Village of Bartlett is included as Exhibit 5 in Appendix A. A current zoning map for this part of the Village of Streamwood is included as Exhibit 6 in Appendix A.

3.4.1.1 Alternative 1 – No Action Alternative

Under this alternative there would be no change to the current zoning and land use conditions.

3.4.1.2 Alternative 2 – BFMP (Proposed Action)

Under this alternative, the current open space at the Streamwood Parcel and the Prospect Commercial Parcel would be converted to stormwater storage basins and associated open space along Taylor Avenue would be converted into a flood control berm. The land use in these areas would be changed and subsequently, the zoning may need to be changed as well. Construction of additional storm sewer and installation of new high-capacity inlets, valves and flapgates within existing roads would not involve changes to land use or zoning.

3.4.1.3 Alternative 3 – The Church Property

Under this alternative, the current open space at the Church Property would be converted to a stormwater storage basin. The Church Property site currently is zoned residential. If the flood storage basin were to be implemented at this site, the zoning would need to be changed.

3.4.2 Visual Resources

The land cover in the proposed project area is a combination of private land open space, public land open space, and public roads. The vegetated portions of the site are predominantly old field growth, mowed turf grasses and wetlands. The project area is within and surrounded by developed, urbanized land, primarily residential.

3.4.2.1 Alternative 1 – No Action Alternative

The No Action Alternative would not change the current visual character of the region.

3.4.2.2 Alternative 2 – BFMP (Proposed Action)

This action would remove the scrub woody vegetation and emergent wetland vegetation on the Streamwood Parcel, the limited scrub woody vegetation and mowed upland turf grasses on the Prospect Commercial Parcel, and the mowed turf grasses and several scrub trees on the Taylor Avenue flood control berm site. Current vegetative cover on these properties would be replaced with flood storage basins and a flood control berm that would feature landscaping consisting of wetland, native prairie, and selected tree species. The visual impact would be beneficial with the creation of a diversified landscape with a variety of native vegetation.

Temporary visual impacts would occur during the construction of the BFMP. Construction equipment would be present at the sites, along with temporary material stockpiles. These impacts would be limited and short-term in nature.

3.4.2.3 Alternative 3 – The Church Property

Under this alternative the site's ownership would change. The visual impacts on the current primarily mowed turf grass and Eurasian weed field would be updated with a large flood storage basin, and the introduction of a greater variety of native vegetation on the property. The property would remain as open space and the change to the current visual resources would be minimal.

Temporary visual impacts would occur during the construction of the project. Construction equipment would be present at the site, along with temporary material stockpiles. These impacts would be limited and short-term in nature.

3.4.3 Noise

Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Village of Bartlett and the Village of Streamwood have enacted ordinances which set limitations on allowable noise levels and describe the measurement criteria. The ordinance defines "excessive noise" and establishes construction activity requirements.

3.4.3.1 Alternative 1 – No Action Alternative

The No Action Alternative would not change the current conditions at the proposed site relative to noise and activities. Current sound sources in the area primarily are from vehicles travelling on the existing residential streets.

3.4.3.2 Alternative 2 – BFMP (Proposed Action)

Upon completion of construction activities, the project site would remain as open space and there would be no change in noise levels.

Most noise associated with this alternative would be emitted by the construction equipment used during the excavation of the flood storage basins, excavation and removal of materials on residential streets for the installation of storm sewers and flap valves, placement of concrete outfall structures, and the filling and grading of the flood control berm site. The proposed project is within close proximity to residential homes in the Village of Bartlett and therefore would comply with the Village of Bartlett Ordinance 4-3-4, Excessive Noise, which defines allowable noise levels at property boundaries.

No long-term negative effects associated with noise are anticipated under this alternative.

3.4.3.3 Alternative 3 – The Church Property

Upon completion of construction activities, the project site would remain as open space and there would be no change in noise levels.

Most noise associated with this alternative would be emitted by the construction equipment used during the excavation of the flood storage basin, removal of material, placement of concrete structures, and final grading of the site. The proposed project would comply with

the Village of Bartlett Ordinance 4-3-4, Excessive Noise, which defines allowable noise levels at property boundaries.

No long-term negative effects associated with noise are anticipated under this alternative.

3.4.4 Public Service and Utilities

The Village of Bartlett and the Village of Streamwood provide police and fire protection to the project areas in their respective municipalities. During times of flooding, the ability to provide these services is reduced. During heavy rain events, street flooding occurs in the project area and reduces the ability to travel and increases travel times. The ability of the Villages to provide police and fire protection is negatively affected by the flooding.

There are a number of public utilities within the vicinity of the BFMP.

- Storm sewer and stormwater drainage-ways are located in the vicinity of the project. For the Streamwood Parcel project area, public storm sewers enter from the north and discharge into an open channel drainage-way located along the west side of the project area. The drainage-way discharges into a storm sewer that leaves the site and flows south. For the Prospect Commercial Parcel project area, there is an existing detention storage basin located on the property with storm sewer entering from the west. The outlet from the basin is to the west and ties into existing storm sewer on Prospect Avenue flowing south.

- Sanitary sewer is not located within the proposed project limits. There is sanitary sewer in the area surrounding the project.

- Water main is not located within the proposed project limits. There is water main in the area surrounding the project.

- Gas pipeline that runs from southwest to northeast on the property is located to the west of the Streamwood Parcel. There is Gas pipeline on the Prospect Commercial Parcel that runs from southwest to northeast through the southeast corner of the property. It is also likely that gas main is located within the ROW of adjacent roadways.

- Power lines are not located within the project limits. There are aerial power lines along North Avenue to the north and the railroad spur along the eastern property boundary of the Streamwood Parcel. Power lines likely are buried within roadway ROW in the area of the Prospect Commercial Parcel. Aerial power lines are located along Lake Street to the north and along the eastern property boundary of the Church Property.

3.4.4.1 Alternative 1 – No Action Alternative

If no action is taken public services and utilities would not be impacted by construction and would continue to function as they do today. However, they would continue to be negatively impacted due to flooding. During times of flooding the following utilities are impacted:

- Sanitary sewer - flooding causes increased inflow and infiltration of stormwater into the sanitary sewer system. This increase causes sanitary sewer basement back-ups and increased hydraulic loading to the wastewater treatment facility.

- Police, fire and emergency medical technician vehicle access can be hampered during street flooding periods.

3.4.4.2 Alternative 2 – BFMP (Proposed Action)

Due to the construction of the proposed BFMP, there would be no disruptions or negative impacts to public services. All roads would remain open to traffic for the duration of the construction project. Following construction of the proposed project, there would be a reduction in the frequency, duration, and depth of flooding that occurs around the project area. This would reduce disruptions to public emergency services and also lessen the need for emergency responses during flood events. Also, after construction of the proposed basin, there would be a reduction in the volume of stormwater infiltration to the sanitary sewer system.

The construction of the proposed BFMP would avoid disruptions to public utilities. The layout of the flood storage basin avoids existing public utilities. A new storm sewer would be installed to divert stormwater into the proposed flood storage basins. During construction, adequate drainage measures would remain in place to maintain the existing flow conditions surrounding the site. Following construction, the disruptions to public utilities caused by flooding would be reduced. Stormwater would be detained within the flood storage basins and away from other utilities.

3.4.4.3 Alternative 3 – The Church Property

Similar to the proposed BFMP, the Church Property flood storage basin would avoid disruptions or negative impacts to public services. All roads would remain open to traffic for the duration of the construction project. Following construction of the proposed project, there would be a reduction in the frequency, duration, and depth of flooding that occurs around the project area. This would reduce disruptions to public emergency services and also lessen the need for emergency responses during flood events. Also, after construction of the proposed basin, there would be a reduction in the volume of stormwater infiltration to the sanitary sewer system.

The construction of this alternative would likely create short-term utilities disruptions. The construction of the storm sewer inlets and outlets associated with the flood storage basin would likely require other utilities to be relocated. This may require utilities such as sanitary sewer service and water service to be shut down to individual properties for a short period while those utilities are relocated. Following construction of this alternative, the disruptions to public utilities caused by flooding would be reduced. Stormwater would be detained within the basin and away from other utilities.

3.4.5 Traffic and Circulation

There are public streets within the alternative project sites.

3.4.5.1 Alternative 1 – No Action Alternative

This alternative would have a continued negative impact to traffic and circulation as road closures occur during flood events. In past flooding events, primary access roads to the area and residences including North Avenue, Prospect Avenue, Wilmington Drive and Newport Lane were closed, causing people to be stranded in their homes until rescued by the fire department in boats. Major traffic re-routing is required during flood events that force the closure of North Avenue.

3.4.5.2 Alternative 2 – BFMP (Proposed Action)

During the construction phase of this alternative, there would be an increase of construction equipment and worker vehicles on the streets near the construction sites. Likely access points to the flood storage basin on the Streamwood Parcel would be from North Avenue, which is immediately north of the excavation area and has a wide shoulder that could accommodate truck and equipment ingress and egress with the implementation of a proper traffic control plan. Access to the Prospect Commercial Parcel flood storage basin at Prospect Avenue and Wilmington Drive would be off of residential streets. The contractor would be required to comply with a traffic control plan as developed for the project. The construction of the flood control berm and storm sewer improvements on Newport Lane, Wilmington Drive, Morse Avenue, Crest Avenue and Taylor Avenue would require temporary road closures.

The construction phase of the project would likely take approximately 12 months.

No long-term traffic or circulation impacts would result from this project. The project would result in a reduction in street flooding. Thus, a long-term traffic benefit would be expected.

3.4.5.3 Alternative 3 – The Church Property

During the construction phase of this alternative, there would be an increase of construction equipment and worker vehicles on the streets near the construction site. Likely access points to the construction site were not considered. The contractor would be required to comply with a traffic plan as developed for the project.

The construction phase of the project would likely take approximately 12 months.

No long term traffic or circulation impacts would result from this project. The project would result in a reduction in street flooding. Thus, a long-term traffic benefit would be expected.

3.4.6 Environmental Justice (Executive Order 12898)

On February 11, 1994, President Clinton signed Executive Order (EO) 12898: "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The EO directs federal agencies, "to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States."

The proposed flood relief project is located within the Village of Bartlett and the Village of Streamwood. According to the 2010 US Census, the Village of Bartlett had a 2010 total population of 41,208. Of that population 80.2 percent is white, 2.8 percent is black or African American, 0.6 percent is American Indian or an Alaskan Native,15.2 percent is Asian, and 8.6 percent are Hispanic (2010 US Census). The median household income in the Village of Bartlett is $94,568 and 5.7 percent of the population lives below the poverty level. The Village of Streamwood had a 2010 total population of 39,858. Of that population 66.0 percent is white, 4.5 percent is black or African American, 0.9 percent is American Indian or an Alaskan Native,15.0 percent is Asian, and 28.2 percent are Hispanic (2010 US Census). The median household income in the Village of Streamwood is $80,498 and 5.3 percent of the population lives below the poverty level (http://factfinder2.census.gov). The proposed project, as well as Alternative 3, the Church Property, is located in areas where the demographics of the Villages would also represent the surrounding area which would be impacted by the project.

The Village of Bartlett has a lower minority population than the State of Illinois, while the Village of Streamwood and Cook County generally have higher minority population percentages than the State. The Village of Bartlett and the Village of Streamwood both have higher median family income levels than the County and State medians and the percent of people living below the poverty level is lower than the County and State averages. Cook County's median income level is lower than the State median, and the percentage of people living below the poverty level is above the State average.

In compliance with FEMA's policy implementing EO 12898, Environmental Justice, the socioeconomic conditions and potential effects related to the No Action, Proposed Action, and Alternative 3 have been reviewed. By reviewing the information from the U.S. Census described above, it was determined that there would not be an adverse impact to minority or low-income populations from any of the three alternatives.

The proposed project would reduce the impacts of flooding and benefit people living within the Village of Bartlett. There would be a reduction in the damage caused to private property, a reduction in the amount and length of travel disruptions caused by flooding, and improved public safety.

3.4.7 Safety and Security

Safety and security issues that have been considered in this analysis including the health and safety of the area residents, and the protection of personnel involved in activities related to the construction of the action alternatives. All safety and security standards as established by the federal Occupational Safety and Health Administration (OSHA) would be

implemented and followed for the duration of the construction. The flood storage basins and flood control structures would comply with the applicable IDNR-OWR regulations.

3.4.7.1 Alternative 1 – No Action Alternative

If no project is undertaken, the risk of flooding would remain in the area downstream of the proposed project site. Without construction of a flood mitigation project the potential for impacts to safety and security due to flooding would remain and be greater than either of the other two alternatives. There is a high probability of continued flooding of residential homes and local roads with the No Action Alternative. It is reasonably likely that public health, safety and welfare would be jeopardized with the possibility of electrocution from flooded residential homes. Flooded home furnishings, carpeting and wallboard may be subject to the growth of mold, causing negative health effects in some individuals. Road closures due to flooding would limit emergency vehicle access and increase response time in emergency situations.

The No Action Alternative would not include construction; therefore, there would be no safety risks stemming from construction activities.

3.4.7.2 Alternative 2 – BFMP (Proposed Action)

The Proposed Action would reduce the frequency and intensity with which flooding would occur, reducing the impact to the safety and security of the surrounding neighborhood. Several safety factors would be incorporated into the design of the basin in accordance with State of Illinois technical standards. These safety features include;

- Planting unmowed native vegetation on the side slopes surrounding the flood storage basin to discourage people from approaching the basin.

- Installation of grates over the basin inlets and outlets to prevent people from entering the storm sewer.

During the construction of the proposed BFMP, a safety risk would exist for those working on the construction of the project. To minimize the risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all appropriate safety precautions; additionally, all activities would be conducted in a safe manner in accordance with the standards specified in the OSHA regulations.

3.4.7.3 Alternative 3 – The Church Property

The implementation of the Alternative 3 Action, the construction of the Church Property flood control basin, would reduce the frequency and intensity with which flooding would occur. This would reduce the impact to the safety and security of the surrounding neighborhood. Several safety factors would be incorporated into the design of the basin in accordance with State of Illinois technical standards. These safety features include;

- Planting tall, native vegetation on the side slopes surrounding the flood storage basin to discourage people from approaching the basin.

- Installation of grates over the basin inlets and outlets to prevent people from entering the storm sewer.

During the construction of the Church Property flood control basin, a safety risk would exist for those working on the construction of the project. To minimize the risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all appropriate safety precautions; additionally, all activities would be conducted in a safe manner in accordance with the standards specified in the OSHA regulations.

3.5 Historic and Cultural Resources

3.5.1 Historic Structures

In addition to review under NEPA, consideration of effects to historic properties is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include identification of significant historic properties that may be affected by the Proposed Action. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP) (36 CFR 60.4).

As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE), "is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist."

In addition to identifying historic properties that may exist in the proposed project's APE, FEMA must also determine, in consultation with the appropriate State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO), what effect, if any, the action would have on historic properties. Moreover, if the project would have an adverse effect on these properties, FEMA must consult with SHPO/THPO on ways to avoid, minimize, or mitigate the adverse effect.

On February 25, 2013, FEMA made a determination that no historic properties were likely to be affected by the proposed project through a letter sent to the Illinois Historic Preservation Agency (IHPA) Deputy State Historic Preservation Officer (Deputy SHPO) regarding the proposed Bartlett Storm Water Management Sewer and Water Retention Enhancements project. The letter included background information and the results of a desktop archaeological review conducted by FEMA. In a response letter dated March 11, 2013 the Illinois Deputy SHPO stated that they had reviewed the project and concurred that no historic structures would be affected. All communication regarding the review of historic structures is included in Appendix C.

3.5.1.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, no construction activities would occur and there would be no impacts to historic structures.

3.5.1.2 Alternative 2 – BFMP (Proposed Action)

Based on the review conducted by the Illinois Deputy SHPO, no historic or cultural resources are anticipated to be within the project area that would be impacted by the Proposed Action. However, if any human or archeological remains are encountered during construction, work at the site would be stopped immediately and FEMA, SHPO and applicable THPO would be contacted immediately.

3.5.1.3 Alternative 3 – The Church Property

Alternative 3 would construct a project similar to the Proposed Action; however, it would be located on a single parcel north of the proposed project site. The location of Alternative 3 is currently a vacant property and is surrounded by residential homes, apartments, and industrial/commercial buildings. It is not anticipated that the construction of Alternative 3 would impact any historic structures. However, if any human or archeological remains are encountered during construction, work at the site would be stopped immediately and FEMA, SHPO and applicable THPO would be contacted immediately

3.5.2 Tribal Coordination and Religious Sites

On March 4, 2013 Nicholas Mueller (FEMA Regional Environmental Officer) sent letters requesting comments on potential project impacts on lands traditionally used by or sacred to Tribal Nations known to have ancestral interests in Cook County. Tribes contacted to request information regarding their interests in Cook County include:

- Citizen Potawatomi Nation
- Hannahville Indian Community
- Prairie Band of Potawatomi Nation
- Forest County Potawatomi Community of Wisconsin
- Ho-Chunk Nation

The letter details the project location and proposed extent of activity and requested comments from the recipients regarding potential impacts on cultural properties of historic or traditional significance. The letter requested comments within 30 days.

By letter dated March 7, 2013, Ms. Melissa Cook, Tribal Historic Preservation Officer for the Forest County Potawatomi Community, responded that the group would like to receive results of an archival review, cultural resource investigation studies, and archeological reports, if completed. No archival review was deemed necessary since areas have been previously disturbed. No responses were received from other tribal nations. However, if any human or archeological remains are encountered during construction, work at the site would be stopped immediately and FEMA, SHPO and applicable THPO would be contacted immediately.

3.6 Comparison of Alternatives

A summary of the anticipated environmental impacts is displayed in Table 3-4 for each alternative. This table summarizes the information discussed in the previous sections of the EA.

Table 3-4 Alternatives Comparison Summary			
A. Description of Alternative	**Alternative 1 – No Action Alternative**	**Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)**	**Alternative 3 – The Church Property**
	• No flood mitigation measures implemented. • Flooding would continue to impact roads, buildings and other infrastructure.	• Construction of flood storage basins providing 90 to 110 acre-feet of additional stormwater storage volume. • Construction of a small flood control berm to prevent overflow to low areas. • Installation of backflow check valve to prevent water runoff backup into low areas. • Upsizing existing 24-inch storm sewer to 30-inch to improve drainage.	• Construction of a flood storage basin providing 32 acre-feet of additional stormwater storage volume. • Construction of a storm sewer relief system to allow storm sewer backup into the basin.

Table 3-4 Alternatives Comparison Summary			
B. Potential Impacts	**Alternative 1 – No Action Alternative**	**Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)**	**Alternative 3 – The Church Property**
Geology and Soils	• No impacts to soils or site geology.	• Excavation of 145,225 cubic yards of soil during construction. • Excavation depths from 5 to 10 feet below existing ground elevations. • Potential for soil erosion. Construction site BMP's to be installed during construction.	• Excavation of approximately 150,000 cubic yards of soil during construction. • Excavation depth of 15 feet below existing ground elevations. • Potential for soil erosion. Construction site BMP's to be installed during construction.

Table 3-4 Alternatives Comparison Summary			
B. Potential Impacts	**Alternative 1 – No Action Alternative**	**Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)**	**Alternative 3 – The Church Property**
Water Resources and Water Quality	• No impact to water resources or water quality. No change in the current stormwater pollutant loads to West Branch Tributary #2 (Country Creek) and the West Branch DuPage River.	• Reduction in peak flow rates and water surface elevations. • Reduction in building and street flooding. • Stormwater pollution control achieved by basins. • Erosion and sedimentation may occur from the construction site. Construction site BMP's to be used to mitigate impacts.	• Reduction in peak flow rates and water surface elevations. • Reduction in building and street flooding. • Stormwater pollution control achieved by basin. • Erosion and sedimentation may occur from the construction site. Construction site BMP's to be used to mitigate impacts.
Floodplain Management	• No impact to floodplains.	• Project not located within FEMA identified floodplain. • Project would reduce flooding within West Branch Tributary #2 (Country Creek) watershed. • No adverse impacts upstream or downstream of project.	• Project not located within FEMA identified floodplain. • Project would reduce flooding within West Branch Tributary #2 (Country Creek) watershed. • No adverse impacts upstream or downstream of project.
Air Quality	• No impacts to air quality.	• Construction equipment exhaust may cause temporary, short-term impact to local air quality. • Potential for exposed soil and dust during construction. • Open construction areas will be minimized and watered when needed. • Fuel burning equipment running times will be minimized.	• Construction equipment exhaust may cause temporary, short-term impact to local air quality. • Potential for exposed soil and dust during construction. • Open construction areas will be minimized and watered when needed. • Fuel burning equipment running times will be minimized.

Table 3-4 Alternatives Comparison Summary			
B. Potential Impacts	**Alternative 1 – No Action Alternative**	**Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)**	**Alternative 3 – The Church Property**
Terrestrial and Aquatic Environment	• No impact to terrestrial or aquatic environment.	• Replacement of 19.2 acres of vegetated scrub upland and wetland areas with native landscaped vegetated flood storage basins. • No impacts to terrestrial or aquatic environment are associated with the Taylor Avenue flood control berm or the storm sewer improvements on Morse Avenue and Newport Lane.	• Replacement of 7.6 acres of old field vegetation with a native landscaped flood storage basin.
Wetlands	• No impact to wetlands.	• Approximately 9.6 acres of wetland would be disturbed. • No impacts to wetlands are associated with the Taylor Avenue flood control berm or the storm sewer improvements on Morse Avenue and Newport Lane.	• No mapped wetlands on the site.
Threatened and Endangered Species	• No impact to threatened and endangered species.	• No known threatened or endangered species in the project area.	• No known threatened or endangered species in the project area.
Hazardous Materials	• No impact to hazardous materials.	• No impact to hazardous materials is anticipated.	• Potential for hazardous materials from offsite property (industrial use property located immediately east of project site). • If hazardous materials encountered, proper handling would occur.
Zoning and Land Use	• No impacts to zoning or land use.	• Existing sites are zoned general industrial, commercial, public land and residential.	• Existing site is zoned residential.

Table 3-4 Alternatives Comparison Summary			
B. Potential Impacts	**Alternative 1 – No Action Alternative**	**Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)**	**Alternative 3 – The Church Property**
Visual Resources	• No impacts to visual resources.	• Existing scrub woody vegetation, mowed turf grasses, emergent wetland vegetation and residential roads would be removed and replaced with native vegetation, turf grass or replacement pavement. • Temporary impact will occur during construction as a result of construction equipment and material stockpiles at the sites.	• Existing old field and scrub woodland vegetation would be removed and replaced with native vegetation. • Temporary impact will occur during construction as a result of construction equipment and material stockpiles at the site.
Noise	• No additional noise generated.	• Temporary increase in noise levels during construction phase from equipment. • Project must comply with Village of Bartlett and Village of Streamwood noise ordinances. • No long term changes to current conditions.	• Temporary increase in noise levels during construction phase from equipment. • Project must comply with the Village of Bartlett noise ordinance. • No long term changes to current conditions.
Public Service and Utilities	• No impact to public service and utilities. • Continued flooding may impact utilities and result in temporary disruption of services.	• No construction phase or long-term impacts to utilities or public services. • Reduction in flooding would result in less disruption of public services and utilities.	• No construction phase or long-term impacts to utilities or public services. • Reduction in flooding would result in less disruption of public services and utilities.
Traffic and Circulation	• No changes to traffic. • Flooding would continue to cause road closures and traffic delays.	• Reduction in street flooding following construction. • Increase in traffic due to construction. Contractor required to comply with a traffic control plan.	• Reduction in street flooding following construction. • Increase in traffic due to construction. Contractor required to comply with a traffic control plan.

Table 3-4 Alternatives Comparison Summary			
B. Potential Impacts	**Alternative 1 – No Action Alternative**	**Alternative 2 – Village of Bartlett Flood Mitigation Project (Proposed Action)**	**Alternative 3 – The Church Property**
Environmental Justice	• Executive Order 12898 is not applicable to this alternative.	• There are no concentrations of minority or low-income populations in the project area that would be negatively impacted.	• There are no concentrations of minority or low-income populations in the project area that would be negatively impacted.
Safety and Security	• Potential existing safety risks would continue to occur from on-going flooding problems. • No construction-associated safety or security concerns would occur.	• Project would reduce safety risks associated with on-going flooding. • Safety measures are incorporated into flood storage basin designs. • Safety risks associated with construction activities would be mitigated by using qualified personnel and appropriate safety standards.	• Project would reduce safety risks associated with on-going flooding. • Safety measures are incorporated into the flood storage basin design. • Safety risks associated with construction activities would be mitigated by using qualified personnel and appropriate safety standards.
Historic Structures	• No historic structures would be disturbed or impacted.	• No impacts to historic structures are anticipated.	• No impacts to historic structures are anticipated.

4.0 Cumulative Impacts

Cumulative impacts are effects on the environment that result from the Proposed Action when added to past, present, and future actions. Cumulative impacts may result from individually minor actions, which when added together result in greater impacts over a period of time.

It is anticipated that cumulative impacts associated with the proposed project would be minor. The construction of the stormwater basins, in combination with the flood control berm construction at Taylor Avenue and the storm sewer improvements on Morse Avenue and Newport Lane, will not cumulatively result in a significant environmental impact. The proposed project would reduce flooding of streets and buildings in developed areas around the project sites project. The Proposed Action would occur within an area of the community that has been previously developed and does not allow for the creation of added developments or new projects, which could increase flooding or other negative environmental impacts.

In addition to the proposed Bartlett Flood Mitigation Project, the Village of Bartlett is in various stages of implementing other stormwater management practices throughout the Village. The projects vary in size and scope, and are in various stages of planning and design. Each project provides flood relief benefits and some projects also reduce stormwater pollution. Additional projects include:

1. Country Creek Detention Basin and Weir Rehabilitation Project - in study phase

2. Amherst Drive Storm Sewer Project - in design/permitting and to be constructed in Summer 2013

The cumulative effects of these projects in combination with the proposed BFMP would have a net benefit for the surrounding residents and environmental characteristics within the Village.

These projects are located in areas which, during larger flooding events, stormwater flows into the West Branch Tributary #2 (Country Creek) watershed and causes additional flooding problems. These projects would reduce flooding in the West Branch Tributary #2 (Country Creek) watershed, as well as reduce stormwater flows into the West Branch DuPage River watershed.

5.0 Participation

All future stormwater management projects would be required to comply with local, state, and federal rules and regulations. By complying with these regulations cumulative impacts to the environment, such as loss of open space or wetlands, would be avoided. Each future project would also be evaluated by a detailed hydrologic and hydraulics analysis to ensure that the project provides flood reduction benefits and there are no unintended flooding consequences. Based on these factors, the cumulative impacts are minor in scope and net positive in effect regarding public safety, health and welfare. The cumulative impacts do not result in a significant environmental impact.

During the process of developing the concept for the BFMP, the Village of Bartlett Staff provided updates to the Village Board at public meetings. At these meetings, the public was provided the opportunity to make comments. Public meetings were held on:

- 1/20/09 Village Board Meeting
- 2/05/09 Special Resident Meeting
- 4/21/09 Village Board Meeting
- 9/15/09 Village Board Meeting
- 8/17/10 Special Resident Meeting
- 11/10/10 Special Resident Meeting
- 9/18/12 Village Board Meeting

A 30-day public review period for this document was held. A public notice regarding the public comments period and the availability of the document will be published in the paper of record when FEMA approval is given to proceed. The draft EA will be available for review at Bartlett Village Hall, 228 S. Main Street, Bartlett, IL 60103 between 8:30 AM and 4:30 PM Monday through Friday. The draft EA will also published at the FEMA website: http://www.fema.gov/recent-environmental-documents-and-public-notices-in-region-v. A copy of the draft notice is included in Appendix F.

At the end of the public comment period a summary of all comments received will be incorporated into this section and copies of the comments will be placed in Appendix G.

6.0 Mitigation Measures and Permits

The following permits would be required for the implementation of the proposed BFMP:

1. An Illinois NPDES General Permit (ILR10) for discharge of construction site stormwater runoff issued by the IEPA.

2. Authorization of compliance with the IWPA for impact to wetlands issued by the IDNR.

The Village of Bartlett would follow all local, state, and federal rules and regulations that pertain to the proposed project. The Village would also obtain all applicable permits prior to commencing work at the proposed site. If permit conditions change the scope of work for the project, it would be submitted to FEMA for additional review.

The implementation of the proposed BFMP would involve a temporary wetland impact by lowering the bottom of the 9.4 acre wetland on the Streamwood Parcel to create flood storage. The impact would be mitigated through the establishment of 10.4 acres of wetland over the entire basin bottom, in conjunction with 2.2 acres of native prairie established on the basin embankments. Implementation of these mitigation measures would result in a net gain of 1.0 acres of wetland on-site, and a total restored native habitat area of 12.6 acres. Specific measures involved in the mitigation include the following:

1. The wetland basin bottom is designed to create a hemi-marsh environment, characterized by an open mix of emergent and/or floating-leaved vegetation interspersed with a submersed plant community.
2. The basin would be planted with native species including sago pondweed, coontail, and wild celery, American lotus, white water lily, and common bur reed.
3. The wetland complex would become habitat for aquatic-dependent birds and amphibians. We can expect that American bitterns, blue herons, great egrets common moorhens and possibly pied-billed grebes may use these areas to nest. The rich vegetation also provides exceptional habitat for zooplankton and insects that are a critical part of the site's intricate food web.
4. The embankment surrounding the basin would be planted with native prairie species and augmented with native trees and shrubs.
5. The Village is committed to completing 3 to 5 years of maintenance and monitoring of the mitigation wetland area to meet performance standards that would be established for the area.

In addition to the above measures for mitigation of the temporary impact to wetlands, the following measures are Best Management Practices (BMP's) that would be implemented at the project sites to avoid or further minimize impacts associated with the implementation of the proposed BFMP:

1. Appropriate construction BMPs will be implemented to minimize soil erosion. The measures will be implemented, installed, and maintained as required by the NPDES permit and meeting Village of Bartlett erosion control standards. The measures may

include, but are not limited to, minimizing the disturbed area, maintaining vegetative cover, inlet protection, stabilized construction entrances, silt fence, and erosion mat.

2. Measures will be taken to reduce the potential for temporary air quality impacts during construction including, keeping fuel-burning equipment running time to a minimum, minimizing open construction areas, and watering open construction areas to control dust when necessary.
3. To mitigate for potential impacts to the terrestrial and aquatic environment, native vegetation will be planted throughout the flood storage basins. Plant species tolerant of the various conditions surrounding the basins will be incorporated into the design. The basins may provide habitat for various wildlife such as water fowl, amphibians, small mammals, and migratory bird species.
4. If hazardous materials are encountered during construction, materials will be handled and disposed of in accordance with all applicable rules and regulations.
5. The proposed project will comply with local noise ordinances which define allowable hours of construction and noise levels at property boundaries.
6. The flood storage basins will incorporate safety features into the design. These features include: tall vegetation to discourage people from approaching the basins and the installation of grates over the inlet and outlet storm sewers.
7. To minimize the risks to safety and human health, all construction activities will be performed using qualified personnel trained in the proper use of the appropriate equipment including all appropriate safety precautions; additionally, all activities will be conducted in a safe manner in accordance with the standards specified in the OSHA regulations.
8. Equipment will be maintained in good working order to minimize noise and pollution.
9. If any human or archeological remains are encountered during construction, work at the site will be stopped immediately and FEMA and the Illinois SHPO will be contacted immediately.
10. If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or in any other unanticipated changes to the physical environment, the Grantee will contact FEMA, and a re-evaluation under NEPA and other applicable environmental laws will be conducted by FEMA.
11. The applicant is responsible for obtaining and complying with all required local, State and Federal permits and approvals.
12. No spoil material removed from project sites may be stored or disposed of in a regulated floodplain or wetland area.

7.0 Consultations and References

The following agencies were consulted during the preparation of this EA:

Federal, State, City, and Local Agencies Consulted:

Federal Emergency Management Agency
Illinois Department of Natural Resources
Illinois Historic Preservation Agency
United States Fish and Wildlife Service
United States Army Corps of Engineers

Tribal Agencies Contacted:

Citizen Potawatomi Nation; Crandon, WI
Forest County Potawatomi Community of Wisconsin; Crandon, WI
Hannahville Indian Community; Wilson, MI
Prairie Band of Potawatomi Nation; Mayetta, KS

References:

CBBEL H&H analysis and FEMA HMGP submittal
US Census Bureau website:
http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t Visited 3/20/2011.
USEPA; Air Quality website: http://www.epa.gov/oaqps001/greenbk/ Visited 3/16/2011.
USDA NRCS Soils website: http://websoilsurvey.nrcs.usda.gov/app/ Visited 3/20/2011.
National Wetland Inventory

8.0 List of Preparers

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Appendix A

Maps and Photos

Appendix B

Wetland and Floodplain Eight Step

Planning Process and Wetland Assessments

Appendix C

Agency Consultation Documents

Appendix D

Environmental Site Assessment Report

and Soil Report

Appendix E

Hazardous Materials Report

Appendix F

Draft EA Public Notice

Appendix G

Record of Public Comments